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(71) Applicants

Energy Resources Co.

Inc.,

185 Alewife Brook

Parkway, Cambridge,

Massachusetts 02138,

United States of America

(72) Inventors

Robert S. Davis,

Herbert M. Kosstrin,

David Andrew

Himmelbleu

(74) Agents

Venner Shipley & Co.,

Rugby Chambers, 2 Rugby

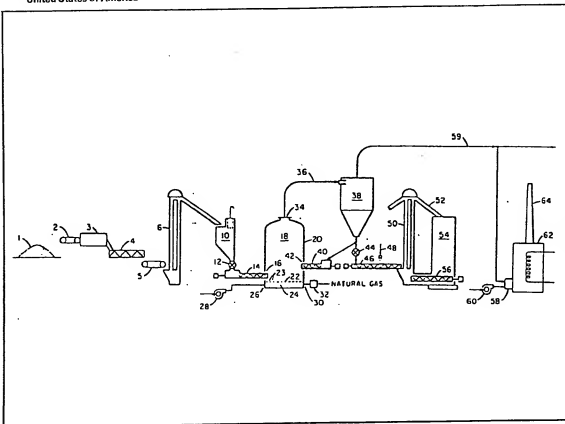
Street, London

WC1N 3QU

(54) Fluidized-bed process to convert solid wastes to clean energy

(57) A method to pyrolyze biomass materials such as rice hulls, municipal waste, etc., to produce useful oil, gas, and char. Disposal of biomass waste materials by burning in boilers results in coating of parts by molten ash, and air pollution. The invention provides

for disposal of biomass materials by conversion to oil, gas, and char by pyrolysis and/or gasification at 400—1100°C in a fluidized bed reactor containing a bed of inert material such as refractory sand using air or mixtures of O₂, N₂, CO₂, and water as the fluidizing gas. Another object is to provide pyrolysis apparatus including a shredder (3), a dryer (4), a gasifying chamber (20), and cyclone separator (38). Separated gases are burned in boiler (62) providing steam to dryer (4) and for electricity generation, or condensed to produce oil. Separated ash is recycled to gasifier (20) and removed to storage (54). Fluidizing gas is provided through port (26) and distributing plate (22).



GB 2 075 543 A